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species of insects, is expected to supply valuable information to scientific investigators and to give guidance to the different administrations, by indicating the lines of advance of the disease and the districts which require special protective measures. The duties of the director of the bureau will for the present be undertaken by Dr. A. G. Bagshawe, of the Uganda Medical Staff.

BEAUPERTHUY ON MOSQUITO-BORN
DISEASES

DR. AGRAMONTE, in an article quoted from the *Havana Cronica Medico* by the *British Medical Journal*, calls attention to the pioneer work of Louis Daniel Beauperthuy, born in Guadeloupe in 1808. Writing in the *Gaceta Oficial de Cumanà* in May, 1853, Beauperthuy says:

To the work I undertook (health officer in a yellow fever epidemic in Cumanà) I brought the knowledge gained during fourteen years' microscopic observation of the blood and secretions in every type of fever. These observations were of great service to me in recognizing the cause of yellow fever and the fitting methods of combating this terrible malady. With regard to my investigations on the etiology of yellow fever I must abstain for the present from making them public. They form part of a prolonged study, the results of which are facts so novel and so far removed from all hitherto accepted doctrines that I ought not to publish them without adducing fuller evidence in support. Moreover, I am sending to the Académie de Paris a communication which contains a summary of the observations I have made up to the present, the object of which is to secure the priority of my discoveries concerning the cause of fevers in general. . . .

The affection known as yellow fever or black vomit is due to the same cause as that producing intermittent fever.

Yellow fever is in no way to be regarded as a contagious disease.

The disease develops itself . . . under conditions which favor the development of mosquitos.

The mosquito plunges its proboscis into the skin . . . and introduces a poison which has properties akin to that of snake venom. It softens the red blood corpuscles, causes their rupture . . . and facilitates the mixing of the coloring matter with the serum.

The agents of this yellow fever infection are of a considerable number of species, not all being of equally lethal character. *The zancudo bobo*, with legs striped with white, may be regarded as more or less the house-haunting kind. . . .

Remittent, intermittent and pernicious fevers, just like yellow fever, have as their cause an animal, or vegeto-animal virus, the introduction of which into the human body is brought about by inoculation.

Intermittent fevers are graye in proportion to the prevalence of mosquitos, and disappear or lose much of their severity in places which, by reason of their elevation, have few of these insects.

The expression "winged snakes" employed by Herodotus is peculiarly applicable to the mosquito and the result of its bite on the human organism.

Marshes do not communicate to the atmosphere anything more than humidity, and the small amount of hydrogen they give off does not cause in man the slightest indisposition in equatorial and intertropical regions renowned for their unhealthiness. Nor is it the putrescence of the water that makes it unhealthy, but the presence of mosquitos.

It was to the *Gaceta Oficial de Cumanà* that Beauperthuy seems to have written most fully, but he made more than one communication to the Académie des Sciences. One of these, dated from Cumanà, January 18, 1856, is entitled "Researches into the Cause of Asiatic Cholera and into that of Yellow Fever and Marsh Fever," and in this he says that as early as 1839 his investigations in unhealthy localities in South America had convinced him that the so-called marsh fevers were due to a vegeto-animal virus inoculated into man by mosquitos.

SCIENTIFIC NOTES AND NEWS

OXFORD UNIVERSITY has conferred its doctorate of science on Dr. F. Raymond, of the Hôpital de la Salpêtrière, professor in the University of Paris; J. J. Harris Teall, M.A., F.R.S., director of H.M. Geological Survey; and James Ward, ScD., fellow of Trinity and professor of mental philosophy in Cambridge University.

DR. BIRKELAND, professor of physics at Christiania, has been given the honorary

degree of doctor of engineering by the Technological Institute of Dresden.

SIR GEORGE DARWIN, K.C.B., F.R.S., has been elected a foreign member of the Amsterdam Academy of Sciences.

SIR WILLIAM RAMSAY has been elected a foreign member of the Società italiana delle Scienze.

DR. MAX RUBNER, professor of hygiene at Berlin, has been awarded the Liebig gold medal by the Bavarian Academy of Sciences for his work in veterinary science.

THE twenty-fifth anniversary of the connection of Professor A. Ceccherelli with the surgical clinic at Parma, Italy, was celebrated on June 24. A "Festschrift" was presented by his friends and pupils, and two albums, with autographs of colleagues at home and abroad and a gold plaque.

DR. AUGUST SCHUBERG, associate professor of zoology at Heidelberg, has been appointed director of the laboratory for protozoa in the Berlin Bureau of Health.

DR. ADOLF MEYER, recently elected director of the psychiatric clinic of the Johns Hopkins University endowed by Mr. Henry Phipps, will shortly visit Europe with the architect of the new buildings to inspect foreign psychiatric clinics.

DR. J. H. MUSSER, Philadelphia, is chairman of the national committee for the United States of the sixteenth International Medical Congress, to be held in Buda-Pesth next year.

THE United States government will be represented at the fourth Latin-American Scientific Congress to be held at Santiago, Chili, next September by W. H. Holmes, Bureau of American Ethnology; Col. W. C. Gorgas, United States army; Professor Bernard Moses, University of California; Professor William B. Smith, Tulane; Professor Paul S. Reinsch, University of Wisconsin; Professor Leo S. Rowe, University of Pennsylvania; Professor William R. Shepherd, Columbia; Professor A. C. Coolidge, Harvard; and Professor Hiram Bingham, Yale.

As heretofore, there is this year at the summer session of Cornell University a series of lectures open to the public on Monday even-

ings through the session. These deal with the present problems in various sciences. The course was opened on July 6, by President Schurman, and other speakers in the course are Professors Nichols, Titchener and Dennis. On Wednesday evenings general lectures are given. Arrangements have been made for one by Professor Condra on the great irrigation projects of the government in the arid lands of the west, one by Mr. Charles W. Furlong on the remote regions of Patagonia, which he visited last winter, and another by Mr. Louis A. Fuertes on birds.

WE learn from *Nature* that the council of the Royal College of Surgeons has given permission to Dr. Elliot Smith and Dr. Wood Jones, of the Cairo Medical School, to carry out, in the museum of the college, an examination of a collection of material found during excavations in the Nile Valley. The material is representative of peoples inhabiting Nubia in ancient times, and is expected to throw light on their pathology and the results of their surgery. The Egyptian government has expressed its willingness to present the collection of specimens to the museum of the Royal College of Surgeons.

THE council of the Royal Society has awarded the Mackinnon studentships for the year 1908 as follows: One in physics to Mr. J. A. Crowther, of St. John's College, Cambridge, for an investigation of the passage through matter of the β rays from radioactive substances; one in biology to Mr. D. Thoday, of Trinity College, Cambridge, for a research into the physiological condition of starvation in plants and its relation to the responsiveness of protoplasm to stimulation, especially to stimuli affecting respiration.

THE astronomical observatory and library founded in honor of Maria Mitchell, adjacent to her birthplace, on Nantucket, were formally dedicated on July 15.

WILLIAM DAMPIER, the navigator, has been commemorated by a tablet placed in the parish church of his native village, East Coker, Somersetshire. It takes the form of a marble slab, bearing a brass plate with inscription recounting Dampier's geographical

achievements, together with representations of the vessels and nautical instruments of his time. There is also a medallion portrait.

THE German emperor has supported the medical and scientific men in Berlin in objecting to the form of the monument designed in honor of Virchow. It is not a statue of Virchow, but introduces as the chief group a symbolic representation of his lifework, in the form of a struggle between a giant and a fabulous beast, while on a pedestal a medallion portrait of Virchow is placed.

DR. F. NOLL, professor of botany at Halle, died on June 22 at the age of forty-nine years.

DR. OSKAR LIEBREICH, professor of pharmacology at Berlin, known for the introduction of hydrate of chloral in 1872 and for other important pharmacological work, has died at the age of seventy years.

THE death is, also, announced of Professor Giuseppe Ponzio of the Royal Polytechnic Institute of Milan, an eminent Italian engineer.

THE San Jacinto Valley in California will hereafter be known as the Cleveland National Forest. It has been so renamed by President Roosevelt in honor of the president under whose administration the first national forests were created. In 1897, in honor of Washington's one hundred and sixty-fifth birthday anniversary, and upon the recommendations of the National Academy of Sciences, President Cleveland created thirteen national forests, containing about 23,000,000 acres. The San Jacinto forest was one of the original thirteen so created.

THE U. S. Civil Service Commission announces an examination on August 12-13, 1908, to fill a vacancy in the position of assistant, at \$1,400 per annum, in the Naval Observatory, Washington.

ATTEMPTS are being made by the New Zealand government to preserve forms of the dominion's bird-life that are becoming rare. Mr. A. Hamilton, director of the Dominion Museum, in Wellington, has gone out into the forest-clad, mountainous districts of the north island to obtain specimens of the huia bird

(*Heteralocha acutirostris*), which is one of the most interesting members of New Zealand's ancient avifauna. The huia lives under parliamentary protection, but as its white-tipped tail feathers, which were formerly worn by the Maoris to denote aristocratic rank, are much sought after and command a high price, a good deal of destruction takes place. The birds obtained by Mr. Hamilton will be placed on some of the island bird sanctuaries established by the government.

THE sub-Antarctic scientific expedition, which set out from New Zealand some time ago, and spent several weeks on the Auckland and Campbell Islands, south of New Zealand, is preparing a series of reports, dealing with terrestrial magnetism, ichthyology, geology, bird and insect life, botany and other branches of science. The New Zealand government has made a grant of £500 to cover the cost of publication, which will be undertaken by the state printing office. The reports will be printed in one large illustrated volume, which will be issued next year.

THE Italian government has appropriated \$3,000 as its annual share in the expenses of the central office, which the International Public Health Conference last December agreed to organize, with headquarters at Paris.

THE fifth congress of the International Association for Testing Materials is to be held at the beginning of September, 1909, in Copenhagen.

THE annual *conversazione* of the Institution of Electrical Engineers, London, was held on June 25 at the Natural History Museum, South Kensington. Colonel R. E. Crompton, the president, and Mrs. Crompton, and the council of the institution received the guests, who numbered about 1,700.

THE Royal Meteorological Society arranged at the recent show of the Royal Agricultural Society, held at Newcastle-on-Tyne from June 30 to July 4, a meteorological section in connection with the agricultural education and forestry exhibition. This included various patterns of self-recording and other instruments, as well as diagrams relating to rainfall,

temperature, sunshine, the influence of weather on crops, health, etc. A collection of photographs illustrating meteorological phenomena was also exhibited. A fully equipped climatological station, with the various instruments in position, was arranged in a railed-off enclosure outside the exhibition building; and an address on "Meteorology in Relation to Agriculture" was given each day by Mr. W. Marriott.

THE first biennial convocation of the grand chapter of Alpha Chi Sigma, the professional chemical society for students in American universities, met on June 27 at the University of Wisconsin. The official delegates representing the seven universities on the chapter roll are as follows: Alpha chapter, University of Wisconsin, F. P. Downing; Beta, University of Minnesota, O. O. Whited; Gamma, Case School of Applied Science, Karl W. Ketterer; Delta, University of Missouri, L. S. Palmer; Epsilon, University of Indiana, W. B. Jadden; Zeta, University of Illinois, E. J. Bartells; Eta, University of Colorado, Frank J. Petura. This is the only fraternity of the kind that is national in its character, and it has been remarkably successful since its organization at the University of Wisconsin in 1902. The purpose is to promote good fellowship and closer relations between those interested in chemistry as a profession.

THE United States National Museum has received as a gift from Mr. J. N. Léger, minister from Haiti to the United States, a case which contains models representing over a hundred different fruits of Haiti arranged for exhibition purposes. This collection of models of fruits and vegetables, which was exhibited at Jamestown, is probably the most complete series of its kind that has ever been prepared. The fruits of Haiti include many forms that are rarely seen in this country, and this set of models can not fail to be of interest. The following are the names of the most curious fruits of the island: cashew, ginger plant, mango, alligator pear, castor oil seed, custard apple, pomegranate, guava, tamarind, naseberry, and a large green bread fruit.

THE Sunday Society, which exists to obtain the opening of museums, art galleries, libraries, and gardens on Sundays, has, says *Nature*, been making attempts, though as yet unsuccessfully, to secure the opening on Sundays of the science and art collections at the Franco-British Exhibition. The experience gained during the last twelve years would appear to show that the Sunday opening of national museums and galleries has been greatly appreciated, and that there has been no abuse of the privilege. The last published returns show that in 1906 the number of Sunday visitors to the British Museum was 57,738, an average Sunday attendance of 1,110; at the Natural History Museum for the same year the corresponding numbers were 61,151 and 1,176. In 1905 the number of visitors to the Victoria and Albert Museum on Sundays was 93,005, an average Sunday attendance of 1,755; the corresponding numbers in the same year for the Bethnal Green Museum were 74,990 and 1,415.

ON May 23, as we learn from the *London Times*, took place the inaugural ceremony of the International Institute of Agriculture in the presence of his Majesty the King of Italy, who attended in state and formally opened the new building erected for the use of the permanent delegates. The Italian government was represented by seven ministers and the chief officers of state, while some 30 foreign delegates attended on behalf of the various countries which have promised their cooperation. Speeches were made by Signor Tittoni, the foreign minister, who welcomed the foreign delegates; by M. Vasconcellos, the Portuguese Minister, in reply, and by Senator Faina, who explained the history and aims of the institute. The foreign delegates were afterwards entertained at a dinner by the king in the Quirinal, at which there were present, among others, Sir Thomas Elliot (Great Britain), Sir Edward Buck (India), Mr. Rutherford (Canada), Mr. Taverner (Australia) and Boghos Nubar Pasha (Egypt). The new building is situated within the gardens of the Villa Borgese, on rising ground immediately upon the left of the main entrance. The

architect, Signor Passerini, may be congratulated on having devised an edifice which is worthy of its beautiful surroundings; also on having wisely spared, as far as was possible, the pine trees which once crowned the height and still almost conceal the new palace from view. The palace, which is the gift of the King of Italy, is of considerable size, and contains meeting rooms, reception rooms, and private rooms for the delegates resident in Rome. All the fittings are of the most complete, even luxurious, character, and no money has been spared to ensure comfort as well as convenience. Besides the palace itself, King Victor Emmanuel has generously endowed the institute with an income of £12,000 a year, which, added to the contributions of those countries which have joined in the scheme, will make a total of about £40,000 a year to defray its expenses. The international character of the institute is already complete; every nation has given its adhesion, and, with few exceptions, has appointed its delegates. There is no need to explain again the aims of the institute, which have already been fully set out in the columns of the *Times*. It owes its existence, first, to the imagination of an American, Mr. Lubin, who started the idea; secondly, to the initiative of the King of Italy, who brought his influence to bear in order to realize it. Three years have not yet elapsed since the conference assembled in Rome, June, 1905, at the king's invitation, and already the institute has taken an actual and material shape. The rapidity of its first growth is a good augury for its future success.

A COMMITTEE on the use of lead in the manufacture of earthenware and china has been appointed by the British home secretary. The committee is to consider the dangers attendant on the use of lead in pottery, and to report how far these can be obviated by improved appliances and methods in lead processes, by the limitation of the use of lead, by the substitution of harmless compounds for raw lead, or of other materials for lead, and by other means. The committee is also instructed to consider the danger and injury to health arising from dust or other causes in

the manufacture of pottery, and the special rules regulating the decoration of earthenware and china. The members are: Mr. E. F. G. Hatch (chairman), Mr. A. Vernon Harcourt, F.R.S., Dr. George Reid, Mr. William Burton and Mr. Bernard Moore.

THE Ohio state legislature has passed the following resolutions:

WHEREAS, the health of the nation is of paramount importance, and "our national health is physically our greatest national asset" (President Roosevelt) and,

WHEREAS, in the growth of nations it inevitably happens that the people are massed in large centers, thereby, if uncontrolled, creating unsanitary conditions destructive of life and health, and,

WHEREAS, such conditions can be removed and prevented only by the intelligent care and oversight of public health officials endowed with broad powers and necessary means for action, and,

WHEREAS, in the prevention of diseases by the enforcement of health measures by local officials in both urban and rural districts adequate results can be obtained only when such measures are soundly based upon well substantiated facts and observations in relation to sanitation and hygiene, and,

WHEREAS, the United States government, in ways impossible for the state and municipality, may gather information and conduct research work to determine the causes of disease and the best measures for their prevention, and by co-operation with state and local authorities may promote the health of all the people, and,

WHEREAS, the President in his Provincetown speech expressed the hope "that there will be legislation increasing the power of the national government to deal with certain matters concerning the health of our people everywhere," therefore,

Be it *Resolved* by the General Assembly of the State of Ohio, that the Congress of the United States be, and it is hereby memorialized and urged, to create and establish a National Bureau of Health, and endow it with power and funds commensurate with the highly important duties with which it will necessarily be entrusted; and,

Be it further *Resolved*, that the senators and members of the House of Representatives from Ohio, in the congress of the United States, be, and they are hereby requested, to urge congress to adopt such legislation as may be necessary to secure the establishment of said proposed bureau of health.

Resolved, that the secretary of the state of Ohio transmit immediately upon the passage of this resolution a copy thereof to the Senate and the House of Representatives of the United States, and to each of the representatives of Ohio therein.

A PRELIMINARY report of the consumption of pulp wood and the amount of pulp manufactured last year has just been issued by the Bureau of the Census. The advance statement is made from the statistics collected by the Census Bureau in cooperation with the United States Forest Service. Many of the figures bring out interesting facts which show the rapid growth of the paper-making and allied industries during the last decade. Nearly four million cords of wood, in exact numbers 3,962,660 cords, were used in the United States in the manufacture of paper pulp last year, just twice as much as was used in 1899, the first year for which detailed figures were available. More than two and one half million tons of pulp were produced. The pulp mills used 300,000 more cords of wood in 1907 than in the previous year. The amount of spruce used was 68 per cent. of the total consumption of pulp wood, or 2,700,000 cords. The increased price of spruce has turned the attention of paper manufacturers to a number of other woods, hemlock ranking next, with 576,000 cords, or 14 per cent. of the total consumption. More than 9 per cent. was poplar, and the remainder consisted of relatively small amounts of pine, cottonwood, balsam and other woods. There was a marked increase last year in the importation of spruce, which has always been the most popular wood for pulp. For a number of years pulp manufacturers of this country have been heavily importing spruce from Canada, since the available supply of this wood in the north-central and New England states, where most of the pulp mills are located, is not equal to the demand. Figures show that the amount of this valuable pulp wood brought into this country was more than two and one half times as great in 1907 as in 1889. In 1907 the importations were larger than ever before, being 25 per cent. greater than in 1906. The spruce imports last year amounted to more than one third of

the consumption of spruce pulp wood. Only a slightly greater amount of domestic spruce was used than in 1906. Large quantities of hemlock were used by the Wisconsin pulp mills, and the report shows that the Beaver State now ranks third in pulp production, New York and Maine ranking first and second, respectively. Poplar has been used for a long time in the manufacture of high-grade paper, but the supply of this wood is limited and the consumption of it has not increased rapidly. Wood pulp is usually made by either one of two general processes, mechanical or chemical. In the mechanical process the wood, after being cut into suitable sizes and barked, is held against revolving grindstones in a stream of water and thus reduced to pulp. In the chemical process the barked wood is reduced to chips and cooked in large digesters with chemicals which destroy the cementing material of the fibers and leave practically pure cellulose. This is then washed and screened to render it suitable for paper making. The chemicals ordinarily used are either bisulphite of lime or caustic soda. A little over half of the pulp manufactured last year was made by the sulphite process, and about one third by the mechanical process, the remainder being produced by the soda process. Much of the mechanical pulp, or ground wood, as it is commonly called, is used in the making of newspaper. It is never used alone in making white paper, but always mixed with some sulphite fiber to give the paper strength. A cord of wood ordinarily yields about one ton of mechanical pulp or about one half ton of chemical pulp.

PROFESSOR H. W. CONN, of Wesleyan University, has sent to the press the manuscript of a new bulletin of the State Geological Survey, "The Algæ of the Fresh Waters of Connecticut," as a companion to a previous bulletin, "The Protozoa of the Fresh Waters of Connecticut." Professor Conn was assisted in the work by Mrs. L. H. Webster, a former graduate student. The bulletin contains over 300 illustrations by the two authors and Harold J. Conn (Wesleyan 1908), son of Professor Conn.

MORE than seventeen million pounds (17,211,000) of metallic aluminum were consumed in this country during last year, according to Mr. W. C. Phalen, of the United States Geological Survey, whose statistical report on the production of aluminum and bauxite has just been published by the survey as an advance chapter from Mineral Resources of the United States, Calendar Year 1907. This is an increase of 2,301,000 pounds over the consumption in 1906. The great increase in domestic production that was predicted in the early part of 1907 was not realized, and the failure of the predictions is attributed by Mr. Phalen, in large part at least, to the falling off in demand toward the close of the year as a result of general business depression. The output of bauxite, which finds its most important use as raw material for the production of metallic aluminum, increased almost 30 per cent. in quantity and a little over 30 per cent. in value in 1907 as compared with the quantity and value of the output in 1906. In the earlier year 75,332 tons, valued at \$368,311, were produced; in the later, 97,776 tons, valued at \$480,330. Although Arkansas still leads in the total production, the output from Georgia, Alabama and Tennessee increased in 1907 over 50 per cent., as compared with an increase of perhaps 20 per cent. in Arkansas. Bauxite ore to the amount of 25,066 tons, valued at \$93,208, was imported during the year, making the consumption of bauxite in 1907 amount to 122,842 tons, valued at \$573,538. In addition to its use in the production of metallic aluminum, bauxite is in demand for the manufacture of aluminum salts, artificial abrasives (alundum) and bauxite brick. This last use is of very recent date. The chief value of the bricks lies in their resistance to the corrosive action of molten metal at high temperatures, and hence they find application in basic open-hearth steel furnaces, in furnaces for refining lead, in copper reverberatory furnaces, and in the linings of rotary Portland cement kilns.

THE need for conserving the mineral fuels of the country for the use of future generations has been emphasized many times during the last few years, not only in numerous mag-

azine and newspaper articles, but in a number of reports emanating from the government bureau especially charged with the investigation of the mineral resources of the national domain—the Geological Survey. The statements that the coal supply of the country is far from being inexhaustible, that the amount available is susceptible of measurement, and that no very long look into the future is required to see the end of the present known deposits are graphically supported by a map that has just been published by the Geological Survey. A somewhat similar map was issued by the survey in 1906, but the work of the geologists in the western coal fields in the last two years has added so much to the known extent of those fields that a new and revised edition has become necessary. The map now presented to the public is unique in several particulars. It not only shows the location and extent of the coal deposits of the United States, but also, by variation in color and depth of shading, the character of the coals in each of the great fields and the depth at which they occur beneath the surface. For the first time an attempt has been made to represent the coal in the deep basins, or "synclines," as the geologists term them, of the Rocky Mountain states, where there is every reason to suppose that coal exists, although it is so deeply covered by later sediments as to be accessible with great difficulty if at all. Other new features of the map are the explanation printed on the side margins, describing the character and geologic age of the coals, and the accompanying tables, which give estimates of the amount of coal originally present in the deposits, the quantity that has been removed, and the amount still available, subdivided into deposits easily reached and those accessible with difficulty.

UNIVERSITY AND EDUCATIONAL NEWS

UNDER the Minnesota state law of 1865 certain swamp lands were set aside to be sold for the benefit of state institutions. The state constitutional amendment which was adopted in 1881 acted to repeal the law of 1865 and the law of 1907 was passed to make effective the plain intent of the constitutional amend-